136 **Marine Fauna.**—The marine fauna of the Andamans is of unusual interest and the aquarium on Ross Island under construction should prove of great scientific value. On examination the marine life goes to show what other physiological facts have proved—the close connection of the Islands with both Burma and Sumatra and the distant alliance with the Indian Peninsula. The land fauna, in several particulars, shows that the Andamans are closely allied zoologically with their neighbours, Arakan and Burma.

Economic Zoology.—The economic zoology of the islands has been thus summarised by Major A. R. S. Anderson.

"The coral reefs and dead shells afford an immense field for obtaining a very fine quality of lime, which has for many years past been used in the Andamans in building operations. Sea cucumbers or trepang are collected, dried and exported to the Chinese market. Wax and honey are obtainable in fairly large quantities in the forests; the honey is, however, of rather poor quality. Cuttle bones in large numbers can easily be picked up all round the islands wherever there is a sloping shore. Ornamental shells can be obtained with great ease in the rocky pools, reefs and shallow waters. Edible oysters are very plentiful. Pearls and mother-of-pearl oysters are occasionally obtained, but no systematic search for these valuable products has ever been instituted. The edible turtle and tortoise-shell turtle are plentiful. The former are sparingly exported and the shell of the latter is collected and exported. Edible birds'-nests of the finest quality are found in many of the caves in both groups of Islands. They are exported to the Chinese market."

Conchology.—The existing sea shells have been extensively collected by local residents for many years past, but there does not appear to be anything specially distinctive about them, and the various species have been incorporated into the general standard works on conchology. The presence of *scalaria preciosa* and of *argonauta argo* is noteworthy. But the land shells are more distinctive in their nature, and seem to corroborate the evidence procurable from the flora and the fauna of the Islands. They have received a good deal of attention both from scientific expeditions and from local collectors. There was a well appointed expedition fitted out by the Danish Government in 1846, in the frigate *Galathea* in which the zoologist, Reinhardt, first paid much attention to the mollusca. The conclusion apparently to be drawn from such knowledge as has been accumulated is, on the high authority of Godwin-Austen, that there is a distinct and close relationship in the past shown with Burma and Arakan by many closely allied species, and equally marked is the paucity of forms having an alliance with Peninsular India. On the other hand, some species are common to these islands and to Sumatra and Java.

137 **Forests.**—A section of the general Forest Department of India has been established in the Andamans since 1883 and, in the neighbourhood of Port Blair, 156 square miles have been formally set apart for regular forest operations. The activity of the department is strictly limited by the amount of convict labour from time to time available, as there is no indigenous labour whatever. The annual value of forest produce used in the Settlement during the last seven years has averaged ₹1,13,683, and the annual value of exported timber has averaged for the same period ₹1,69,633. This last product is increasing rapidly in value.

313 137 **The Timber and its Economic Uses.**—The timber available for economic purposes is both plentiful and various. It is divided for commercial objects into three classes, known by their commercial names thus:—First class, Padouk, Koko, Chuglam, Marble-wood, Satin-wood; Second class, Pyimma, Bombway, Chai, Lakuch, Lalchini, Pongyet, Thitmin, Mowha, Khaya, Gangaw, Thingan; Third class, Didu, Ywegyi, Toungpeingyi and Gurjan. Padouk is the chief timber for export to Europe at a very high price per ton, but other first class timbers also find a market there. Third class timbers find a ready market in Calcutta, while the second class are extensively used locally.

The trees chiefly used as timber by the Andamanese for their own purposes are mangrove, padouk, *melochia velutina*, some of the sterculiaceæ, *bombax insigne*, *areca laxa*, pandanus, bamboo, *anadendron paniculatum*. They also gather and eat the fruit of a great variety of trees and use the leaves of the following for medicinal purposes:—*trigonostemon longifolius*, *alpinia* species. *Calamosagus laciniosus*.

Padouk (*pterocarpus dalbergioides*) can be used for buildings and boats, for furniture and fine joinery, and for all purposes to which teak, mahogany, hickory, oak, and ash are applied. It seasons quickly and easily, and is immune from the attacks of white ants and borers, except the marine worm (*teredo navalis*), and from rot of all kinds: colour, pale and dark red and brown. Koko (*albizzia lebbek*) is used for battens and furniture; colour, greenish grey, light brown and chocolate with dark markings. White Chuglam (*terminalia bialata*) and black Chuglam (*myristica irya*) are used for furniture, cars, shafts, and planking; colour, grey with darker markings. Marble or zebra wood (*diospyros kurzii*) makes furniture and joinery; colour, ebony with streaks of grey or light brown. Satin-wood (*murraya exotica*), which is not the satin-wood of Ceylon (*chloroxylon swietenia*), makes delicate furniture; colour, yellow. The proper names for the woods of the second class are as follows:—Pyimma, *lagerstræmia hypoleuca*: Bombway, *terminalia procera*: Chai, *alphonsea ventricosa*: Lakuch, *artocarpus lakoocha*: Lalchini, *calophyllum spectabile*: Ponyet, *calophyllum inophyllum*: Thitmin, *podocarpus neriifolia*: Mowha, *mimusops littoralis*: Khaya, *mimusops elenchi*: Gangaw, *messua ferrea*: Thingan, *hopea odorata*. These are used for a great variety of economic purposes locally connected with the building, ship and carriage making, furniture and joinery trades. Of the third class timbers, Didu (*bombax insigne*) is used for tea boxes and packing cases; Toungpeingyi (*artocarpus chaplasha*) for cases and planking; Ywegyi (*adenanthera pavonina*) for inferior cabinet furniture; Gurjan (*dipterocarpus turbinatus*) for slabs and planking and wood-paving. Lakuch and Ywegyi yield a yellow dye, Khaya the pagoda gum of Madras, Gurjan a resin and the well known oil.

The great mangrove swamps supply unlimited fire-wood of the best quality, and the bark of the trees a tan, as does also that of the bombway. The best mixture for steeping wooden shingles, is 3 lbs. of gurjan oil, 1 lb. of crude petroleum, 1 lb. of red ochre or metallic paint: the first and third ingredients are produced in the Andamans. Other minor products of the forests are several species of bamboo and cane and two thatching palms, *nipa fruticans* and *licuala peltata*. The cane roots are largely used in Calcutta for walking sticks: the majority of those sold by street vendors there from 4 annas to 8 annas each are from the Andamans. The inner bark of the *sterculia villosa* is used for making elephant harness for dragging timber, and the long climbing canes for ferry ropes and boat fenders. As regards general capabilities the Andaman forests, in addition to the invaluable and largely spread padouk, there is an extremely abundant supply of gurjan, gangaw (the Assam iron-wood) suitable for sleepers, and didu for tea boxes. Labour only is required to bring them on to the suitable markets. Safe anchorages are numerous and there is no difficulty in providing convenient points at which to ship the timber when extracted, especially as the localities of the valuable timbers are situate on, or near to, navigable creeks leading direct to the sea and thus rendering the forests capable of easy and economical working.

Imported Flora.—Both Kurz and Prain have written elaborately on the imported flora of the Andamans, and among the intentionally introduced plants and trees may be mentioned tea (*camellia theifera*), Liberian coffee (*coffea liberica*), Cocoa (*theobroma cacao*), Ceara rubber (*manihot glaziovii*) which has not done well, Manilla hemp (*musa textilis*), teak (*tectona grandis*), cocoa-nut (*cocos nucifera*), besides a number of shade and ornamental trees, fruit trees especially of the anti-scorbutic kinds, vegetables and garden plants. Among the shade trees, the most interesting is the flourishing rain-tree (*pithecolobium saman*) of the West Indies and American Continent, and among the vegetables the Otaheite potato (*dioscorea species.*). An attempt has also been made to introduce the Bahamas aloe (*agave sisalana*), but though it has flowered and given out bulbils in quantities, success is not yet assured. Tea is grown in considerable quantities and the cultivation is under a department of the Penal Settlement. The outturn for the last seven years has been on an average 2,519 chests per annum.

General Character of the Forests.—Generally the forests are filled with ever-green trees covered all over with climbers, but patches of deciduous forest

10: Sen K-3, 4 (ca. 1955) 1962 AZ2 Andamans AZ2

simultaneously with it a successful all-round regional development of the islands.

The resources of the islands having a small areal extent are very limited though the forest and sea products are fairly rich to deserve special mention. The presence of a variety of valuable species of timber in these islands has led to their exploitation since the development of the Penal settlement. The important species of timber found in the Andaman forests are padauk, garjan etc. In the previous decades, the forest exploitation was never associated with a commensurate amount of forest regeneration. Such policies are being followed at present for saving the forest resources from ruthless exploitation without any adequate means of ensuring a perennial supply of timber by systematic regeneration. The recent colonisation scheme has invoked the enquiry for the clearance of the forests. Andaman forests being rich in timber and also being the only major revenue earning source of the islands should by no means be ruthlessly cleared for settlement. Not only it depletes the forest resources but also degenerates the soil—the soil erosion being the immediate victim after such clearance of forests. Considering the primary importance of the forest resources of the islands, it seems to be a plausible agreement that at least 50% of the land should be reserved under forest cover and a further curtailment from this percentage will undoubtedly lead to serious consequences of the soil simultaneously with a great decrease in the resources of the islands.

The sea products range from a wide variety of products from sea shells to sea fisheries. The collection of sea shells is in vogue from a fairly long time and the sea fisheries, mostly being confined to the coastal areas, is conducted by the fishermen and the tribal people for their own consumption. There is a good deal of possibility for furthering the development of marine fisheries on a commercial scale but the lack of enterprise and capital investment has not given rise to any appreciable development. The only two enterprises of the fisheries are those of Trochus and Turbo shells by the Japanese during 1930-36 and another enterprise by a business concern in 1947. Even the present catch from the coastal areas amount to only 300 lbs., a considerable lag from the demand within the islands.

The means of earning livelihood in the islands were hunting and collecting by the aboriginal population who have not even to-day learnt the techniques of domesticating plants and also animals except the Onges who have domesticated the dogs very recently. The penal settlement and the subsequent expansion of the administrative seat at Port Blair

10: Sen K-3, 4 (ca. 1955) 1962 AZ2 Andamans AZ2

CHAPTER V
NATURAL VEGETATION

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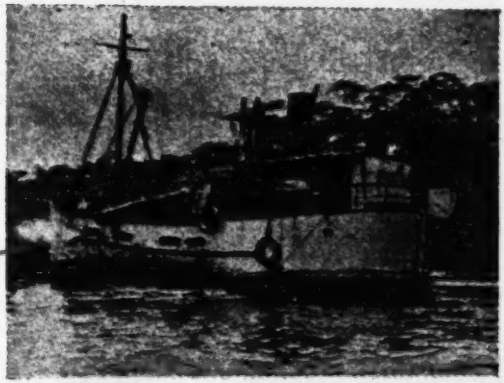

A timber carrying launch of the Andamans.

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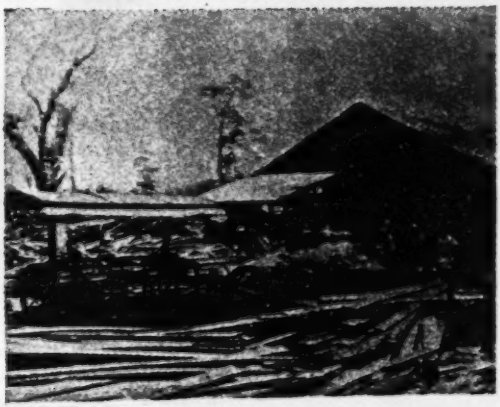

A view of the Saw Mill at Chatham Island.

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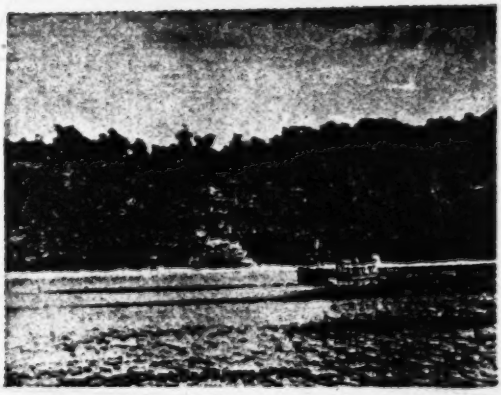

A view of the natural vegetation along the Sea coast.

[facing p. 36]

10: Sen K-3, 4 (ca. 1955) 1962 AZ2 Andamans AZ2

The Evergreen forests are obviously concentrated in the regions of perennial water supply of water and therefore, are found in the moist valleys of the fresh water streams and also on the high hills as they experience relatively greater amount of rainfall. The principal trees are various species of Garjan (Dipterocarpus) associated with Black Chuglam (myristica irya), Lalchini (Calophyllum spectabile), Toungpeing (Artocarpus Chaplasha) etc. besides a number of minor species.

The Deciduous forests exist primarily on the lower and more gentle slopes of the hills. Padauk (Pterocarpus dalbergioides) forms the principal tree associated with Canarium euphyllum, Papita (Sterculia campanulata), Koko (Albizzia lebbek), Didu (Bombax Chaplasha), Pyimma (Lagerstreamia hypoleuca), White chuglam (terminalia bialata). Besides these few important species, a host of other types of trees are found in the islands but they are not so important from the point of view of revenue.

The Mangrove forests are widespread almost all along the coasts and especially along the estuaries of many creeks in a belt varying from a few yards to over a mile in width. As the creeks penetrate deep into the islands, the mangrove forests are also found to do so. The species of importance are Bruguiera gymnorhiza, Rhizophers Conjugata and Mucronata. The first one of them is of supreme importance which grow in pure stands. It attains a height of 70 to 80 feet and a girth of 5 feet.

Economic Value of the Forests of the Andamans.

The forest resources hold a key position in the list of the resources of the islands. The tropical vegetation inspite of its luxuriance, is generally much inferior to the temperate forests from the economic point of view. The absence of the growth of the different species in pure stands, the non-availability of the dense tropical vegetation, a sultry climate being incongenial for the tiresome and strainous labour required for lumbering operations and the great distance of the forest areas from the areas of consumption are the factors which have decisively proved the inferiority of the tropical forests. In many parts of the tropics, the forests being accessible and having good communication facilities, have paved the path for the development of the lumbering industry. Only because of these advantages the forests of the Caribbean Islands, Puerto Rico etc. have been virtually exhausted and many of the southeast Asian countries have started it at a very rapid pace.

The forests of the Andamans, in spite of their luxuriance, donot have very many valuable species though a few of them are useful for a large

10: Sen K-3, 4 (ca. 1955) 1962 AZ2 Andamans AZ2

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number of purposes. The important species are padauk (Pterocarpus dalbergioides), garjan (Dipterocarpus spp), white dhup (Canarium euphyllum), papita (Sterculia campanulata) and the other ones of lesser importance are koko, white chuglam, lakuch, thingan, ywegi, lal bambwn, etc. A classification of the species according to their economic value and uses has been attempted below.

Class I type — Padauk, Koko, Chuglam, Marble wood and Satin wood.

Class II type — Pyimma, Bambwn, Chai Lakuch, Lakuch, Lalchini, Pongyet, Thitmin, Mowha, Khaya, Gangaw, Thingau.

Class III type—Didu, Ywegyi, Toungpeingyi and Garjan.

Of the class 1 woods, the padauk is of the most superior quality. Its average weight is 48 lbs. per cubic foot. It is a deep red wood, often with darker streaks, moderately hard and durable and seasons well and takes a fine polish. Some trees produce pale coloured wood, known in the trade as 'off colour' padauk which though good for construction purposes is of less value than the red padauk for ornamental use. Padauk is generally used for building boats, furniture, fine joinery and for all purposes to which teak,mahagany, hickory, oak and ash are applied. It is immuned from the attacks of white ants and borers, except the marine worm (toredo navalis) and form rats of all kinds.

The kako is of the colour of greenish grey or light brown or chocolate with dark markings with an average dry weight between 45-50 lbs. per cubic ft. It is not so hard and lustrous like padauk and as such is used in battons and furniture making.

The white and the black chuglams are of grey colour with darker markings. They are generally used for furniture, shafts and planking.

The marble or zebra wood is ebony with streaks of grey or light brown. It is used generally for furniture joinery makings.

The stain wood[1] is genearlly yellow in colour and it is soft and light. It is used for the manufacture of delicate furniture.

The Class II woods are used for a great variety of purposes. The pyimma is of considerable importance in the export list of the trees. The average dry weight is about 40 lbs. per cubic foot and is pale in colour, hard, durable and seasons well but swells when wet. It is largely used for building purposes specially as beams of the roof.

These informations were collected from the Forest Department, Andamans.

1. It is confused by many with the Satien Wood of Ceylon.

10: Sen K-3, 4 (ca. 1955) 1962 AZ2 Andamans AZ2

The bombwn is the second most important type in the Class II type of woods. It has an averge weight of 40 lbs. per cubic ft. and is generally yellowish grey in colour with darker streaks. The durability of the wood is quite long but it cannot stand exposures. It is generally used for making of furniture and joineries.

The rest of the woods have also got an widespread application in a variety of purposes e.g. house building, shipmaking, carriage and furniture making. But the amount exploited from the forests is not of significance.

The didu and garjan are the most important in the class III type of woods. The former is of readdishy greay or yellowish in colour and is very soft and light. As such it is widely used in the making of packing cases for tea specially. The garjan is of the greatest demand of the Andaman forest woods. It has an average weight of 45-56 lbs. per cubic foot and is moderately hard. It is reddish grey to reddish brown in colour and is of moderate duration and as such the wood cannot be used for railway sleepers unless treated. It is used for planking and wood-paving now-a-days.

Ywegyi, being not a durable and hard type of wood, is generally used for the making of inferior cabinets. The trees yield a yellow dye which is also of wide use.

Besides these, there are a host of other forest woods such as the several species of bamboo, cane, thatching palms etc. (For the industries based on forest products, see the Chapter on Industry.)

Forest Working.

The exploitation of timber from the forest has been attempted since the formation of the penal colony in the islands. For the systematic working of the forest, a Forest Department was opened in the year 1883 and a saw mill at Chatham was established in 1915 with a monthly outturn of 100 tons. But this was closed and another saw mill was set up by the Burma Trading Company having a monthly output of 750 tons and a second mill, an American circular mill in Chatham in 1927 and another mill in the North Andaman in 1925. But fortunately the wanton destruction of the forests was not possible because of the limited convict labour, and the fear of working in the aborigine-infested areas. The elephants were proved to be uneconomical in the exploitation of forest and an attempt for replacing the elephants by skidder was made in 1930. But the latter one was found to be uneconomical compared to the elephant power and this resulted again in the engagement of elephant

10: Sen K-3, 4 (ca. 1955) 1962 AZ2 Andamans AZ2

313 492 power in the forests. The net revenue of the forests from 1869 amounted to Rs. 45,65,764 inclusive of a capital asset of Rs. 21,39,983.

313 The present day forest exploitation has to some extent been revitalised with the introduction of regenerating processes and use of disel engines for the trams carrying logs from the spot of exploitation to the jetty wherefrom it is carried down to Port Blair for sawing and finally exported to the mainland and London. The working of the forest in the Andamans and its preparation for marketing undergo a number of stages. After a proper survey, a spot of exploitation is selected where a forest camp is opened near the jetty with a sufficient strength of imported labourers from India. The forest camps are erected with local timber and the exploitation proceeds from the spot in the immediate neighbourhood of the jetty (exclusive of the mangrove forests) to the interior regions. Along with the expansion of the exploitation area, tram lines are laid down from the jetty onwards. The felling is done by chiselling the trunk of the trees and then it is pulled by a few elephants for breaking it down. This completes the felling of the tree and after properly cutting all the branches, the logs are carried by an elephant with the help of his trunk and are unloaded from the tram. Afterwards, it is taken to the jetty where the logs are again unloaded and rafted in a tank-landing craft to make them ready for transportation to Chatham Island where it is shown into standard size (not always) and is exported to the markets. The transportation of the logs from the spot of exploitation to Port Blair is always done on water ways. The success in the transportation of the logs have been facilitated by the innumerable harbours and creeks making easy the passage of the boat into the interior parts of the islands and it is found that the average drag seldom exceeds a mile and at the same time exploitation requires some experience of local conditions and foresight, as the coastal areas are exposed to the open seas and advantage has to be taken of the different seasons of the year to work in different tracts.

313 505

313 433 The yield of merchantable timber is only 15 tons per acre. An assessment of the future potentialities of merchantable timber with the introduction of the present method of regeneration has been given by Sri Chengapa[1]. The sustained or perpetual yield of the forests is about 135,000 tons per year and according to him, with the introduction of the present method of regeneration, the yield per acre is expected to be as much as 75 tons per acre, a five fold increase of the present yield. The

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1 Chengapa, B. S. — The Andaman forests and their development; Census of India, 1951, Volume XVII, Andaman & Nicobar Islands by A. K. Ghosh.

10: Sen K-3, 4 (ca. 1955) 1962 AZ2 Andamans AZ2

approximate estimate of the output of the different types of timber is given below. 313 433

Annual yield — 675,000 tons,

Padauk — 7000 tons, Garjan — 28,0000 tons, White Dhup — 21,000 tons, Papita — 28,000 tons, Koko — 500 tons, White Chuglam — 7,000 tons, Black Chuglam — 2,500 tons, Pyinma — 1,500 tons, Badam — 11,000 tons, Didu — 7,000 tons and others — 14,000 tons.

Source: Chengapa, B. S.—The Andaman forests and their development; Census of India, 1951, Volume XVII, Andaman & Nicobar Islands by A. K. Ghosh.

The limitations in the exploitation of the forest resources of the Andamans are not few. The problems faced upto 1934-35 were primarily because of the inefficient methods in the extraction of timber and absence of due attention in the regeneration of the forests. Previously the exploitation was confined only to the coastal areas because of the easy accessibility, but the vast tracts of rich resources in the interior remained virtually untapped in the absence of any economic device. The construction of an experimental tramline in the Rangat valley, however, proved successful. The regeneration of the forests was also little cared for. The new plantations hardly exceeded 100 acres though the exploitation was widespread over large areas. Improvements in the line of regeneration were discernible since the year 1932 and marked improvements were brought about by the year 1936-37. According to this new device, the old crop is removed in two or more successive fellings allowing nature to do the sowing. 313 185

However, some of the limiting factors in the exploitation, transportation and marketing of the forest products are given below. 313 433

(1) The selection of the forests for exploitation is made from a very vague idea and proper surveys are hardly undertaken to realise the actual conditions in the fields which really happen to be quite different from theoretical speculations. It is found that many forests specially in the North Andaman are yet to be explored. Hence the insufficiency of knowledge regarding the forests has made the proper selections of the actual spots of exploitation an impossibility.

(2) The forest working in many regions have to be abandoned because of the seasonal water-supply.

(3) The trees in the forests do not occur in pure stands and hence random felling operations are done irrespective of the type of trees. It is estimated that the total wastage of timber in the Andaman forests is approximately 1 crore of rupees in value.

10: Sen K-3, 4 (ca. 1955) 1962 AZ2 Andamans AZ2

313 (4) The amount of exploitation of timber in the Andamans reflects the nature of demand and its amount. The demand being highly elastic so long, the exploitation, in consequence, has suffered. The sale system of timber is far from satisfactory as the prices of the timbers are informed by the farms who buy them and on this basis the prices of the timbers are fixed and Sri Shivdasani writes[1] that "the purchasers themselves are the suppliers of information on which the department fixes the price. The effect of refusal to sell to anyone who wants the produce is to eliminate one of the main price determining factors i.e., extent of demand. The tendency of selected purchasers who become middlemen and pass on the timber to consumers after keeping a profit for themselves is to be more interested in buying those varieties of timber produced that have the best market. At the hands of the selected purchasers the marketing of Andaman timber cannot receive the attention required to ensure that as many categories as possible are sold. The interests and profit of the selected purchasers came first. Not only are they in a position to obtain disproportionate profit but the fixing of the price of such an important commodity being left to negotiations between one officer and interested purchasers is fraught with other dangers also."

(5) The problem of labour supply is also not satisfactory. Local labourers are not available because of their reluctance to do all these jobs. Labourers are to be brought from the mainland and they are either Ranchi or South Indian labourers.

The immediate steps that should be taken for the proper working of the forest are the fundamental change in the sale-system, addition of transports facilities from the Andamans to the mainland, formation of a permanent source of local labourers and proper surveys before the forests are worked. Regeneration of the forests have been introduced in recent times. The over importance given by the Forest Department to a few farms in the sale of Andaman timbers has led the department to be a tool in the hands of the farms. The sale of these timbers should be made to any farm found suitable by the Forest Department after proper consideration and the fixation of the price should also be determined by the department.

Unless the transportation facilities of timbers from the islands to the mainland are increased, the amount of forest working can hardly

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1 Shivdasani, H. R.—Report on the possibilities of Colonization and development of the Andaman and Nicobar Islands, 1949.

10: Sen K-3, 4 (ca. 1955) 1962 AZ2 Andamans AZ2

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be accelerated. It is believed that the demand for timber in the mainland is so much that it can easily absorb as much timber as the islands can produce. The transportation problem, is one of the, if not, the most important limiting factor in the amount of forest exploitation. In this connection, it may be recalled that the Forest Department can hardly cope with the forest clearance as well as find a market for the timber in the recent colonisation scheme in the country. These are obviously due to the scarcity of labour supply, shortage of elephant power, labour supply and transportation facilities.

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the river and indeed so practically contiguous that the towns are virtually one.

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The real interest of the Tamprabarni, its irrigation apart, lies in the future. The Tamprabarni is probably unique among Indian rivers in that it was harnessed to provide direct hydraulic power for cotton spinning: the first of two turbine-driven mills was set up in 1885. At Papanasam there is a 300-ft fall which is being developed to produce 21,000 kW (ultimate capacity 28,000). The actual engineering work is completed, and full development is limited only by doubts as to the need of conserving water for irrigation; but the possibilities of cheap electricity in this area are manifold: foremost perhaps an increase of well-irrigation in the half-dead edaphically arid tracts, and industrially the revivification of the palmyra sugar industry, the extension of cotton in all its branches. Oilseeds could certainly be more widely cultivated in the red soil area, possibly leading to soap and allied industries, and the hills contain vast reserves of bamboo for paper-making.

The Andaman and Nicobar Islands

A 133

These two groups, directly under Delhi, continue the trend of the Arakan Yomas, linking them to the Sumatran ranges. They differ between themselves to a marked extent; both physically and culturally.

1. *The Andamans*

These number over 200, extending NNE/SSW for some 220 miles between 10° and 14° N; the total area is 2500 sq mls, of which the great bulk is in the three major islands of North, Middle, and South Andaman. These three, indeed, are separated only by narrow mangrove-fringed inlets, so that they are often referred to as virtually one island, Great Andaman. The islands are formed of sandstones, limestones, clays, and some serpentines, probably mainly Tertiary, and are highly dissected, rising to 2400 ft. With a temperature never far from 85° F, rainfall over 100 ins., and a monsoonal distribution with no really rainless season, they are naturally jungle-covered: mangrove along coasts and inlets, tropical evergreen along valleys and on steeper wetter slopes, elsewhere moist deciduous. Forestry is perhaps the most important economic activity and is fairly well organised; a match factory was set up about 1930.

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The total population in 1941 was 21,316, but this included a strange medley: aboriginals, convicts and ex-convicts with their 'local-born' children, officials. A century ago the aboriginals probably numbered about 5000; in 1931 they were estimated at about 460, in 1941 at 62; many tribes have died right out. At once shy and savage, they had a reputation for ferocity, and early settlement was avowedly to protect shipwrecked